

AMENDMENTS TO THE CLAIMS

The following is a complete listing of the claims indicating the current status of each claim and including amendments currently entered as highlighted.

1. (currently amended) A temperature control apparatus for a heater using an encoder switch that controls an indoor temperature by driving a burner in accordance with a change of the an-indoor temperature and ventilating heated air indoors, the apparatus comprising:

(a) an encoder switch for converting a user's set temperature value into a digital signal of a predetermined number of bits;

(b) a microcomputer for comparing the indoor temperature inputted in real time with the user's digital set temperature, the microcomputer operative to drive the burner if the indoor temperature is lower than the set temperature by less more than a predetermined temperature T_1 $^{\circ}\text{F}$, and to stop stopping the driving of the burner if the indoor temperature is higher than the set temperature by more than a predetermined temperature T_2 ; and

(c) a display unit for checking and displaying various kinds of error modes occurring while the burner is driven in accordance with a control signal inputted from the microcomputer;

(d) a temperature display selection unit for selectively displaying the indoor temperature displayed through the temperature display unit by Celsius (C) or Fahrenheit (F);

(e) a fire sensing unit for sensing an ignition state of the burner by sensing a fire sensitivity in the burner;

(f) a thermistor for sensing the indoor temperature changed in real time;

(g) a temperature sensing unit for sensing a temperature of the burner that rises according to a combustion operation of the burner;

wherein the display unit comprises:

(i) a temperature display unit for displaying the indoor temperature inputted in real time in accordance with the control signal from the microcomputer. and

(ii) an ignition state display unit for displaying a ignition state of the burner through a power LED in accordance with the control signal from the microcomputer;

wherein the microcomputer checks:

(A) the various kinds of error modes occurring while the burner is driven, and if an error occurs, the microcomputer displays the error mode by flickering the power LED at predetermined intervals;

(B) error modes occurring due to a failure of an initial ignition of the burner and an incomplete combustion of the burner by checking a voltage value inputted from the fire sensing unit

(C) an error mode occurring due to disconnection of the thermistor by checking a voltage value inputted from the thermistor; and

(D) an error mode occurring due to overheat of the burner by checking a voltage value inputted from the temperature sensing unit.

2. (Cancelled).

3. (Cancelled).

4. (Cancelled).

5. (Cancelled).

6. (Cancelled).

7. (previously presented) The temperature control apparatus in accordance with claim 1, wherein the microcomputer determines the incomplete combustion if

a value of a voltage inputted from the fire sensing unit is inputted three times or more as a value of 100ms for a predetermined time, and the predetermined time is 5 seconds.

8. (Cancelled).

9. (Cancelled).

10. (Cancelled).

11. (Cancelled).

12. (Cancelled).

13. (Cancelled).

14. (Cancelled).